



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/063,279	04/08/2002	Curtis E. Scott	33916	2460
116	7590	03/12/2004	EXAMINER	
PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108			HARPER, HOLLY R	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/063,279

Applicant(s)

SCOTT ET AL.

Examiner

Holly R. Harper

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 22-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22 and 23 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 12-18, 24, 25, 27 and 28 is/are rejected.
- 7) ☐ Claim(s) 4, 9-11, 19, 20, 26 and 29 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 April 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____ .
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ . 6) ☐ Other: ____ .

DETAILED ACTION

Response to Amendment

The Amendment, filed on 8/21/2003, has been entered and acknowledged by the Examiner.

Claim 29 has been entered.

Claim 21 has been canceled.

Claims 1-8, 11, 18, 19, and 22-24 have been amended.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 7, 8, 14, 15, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Woodward et al. (USPN 5,898,265).

Regarding claim 1, Woodward discloses a mercury vapor discharge fluorescent lamp with a light-transmissive glass envelope (Figure 1, Element 3) with an inner surface, a phosphor layer (Figure 1, Element 17) adjacent to the inner surface, a discharge-sustaining fill gas of mercury vapor and inert gas sealed inside the envelope (Column 4, Lines 58-62), and a mercury barrier (Figure 1, Element 16) being effective to inhibit mercury atoms from absorbing into the glass envelope and amalgamating with sodium atoms therein, wherein the mercury barrier is

Art Unit: 2879

substantially non-mercury absorptive (Column 4, Lines 47-51). The mercury barrier is located on the inside of the glass envelope on the inner surface and extends into a radial depth within the envelope (Figure 1).

Regarding claim 2, Woodward discloses the glass envelope being made from soda-lime glass (column 4, Lines 34-36).

Regarding claim 3, Woodward discloses the mercury barrier is made from an oxide consisting of magnesium, aluminum, titanium, zirconium, and the rare earths (Column 4, Lines 48-55).

Regarding claim 7, Woodward discloses the mercury-insulating section is a layer made from a metal oxide (column 4, Lines 48-55). The layer is a mercury barrier (Column 4, Lines 47-51) and therefore doesn't react or amalgamate with the mercury vapor in the lamp. To be a coating on the inside of a lamp, the particles would have to be densely packed.

Regarding claim 8, Woodward discloses a lamp with a glass envelope, then a mercury barrier layer, and then a phosphor layer (Figure 1). So that light can be transmitted outside of the glass envelope, the mercury barrier layer would have to be light transmissive.

Regarding claims 14 and 15, Woodward discloses a TCLP compliant fluorescent lamp with a lumen/watt of 75 (Column 7, Table 1). A standard life of the lamp is 20,000 hours (Column 7, Lines 47-50). Therefore, the lamp has a lpw greater than 54 at 2000 and 3000 hours of cyclical operation.

Regarding claim 18, Woodward discloses a mercury vapor discharge fluorescent lamp with a light-transmissive glass envelope (Figure 1, Element 3) with an inner surface, a phosphor layer (Figure 1, Element 17) adjacent to the inner surface, a discharge-sustaining fill gas of

Art Unit: 2879

mercury vapor and inert gas sealed inside the envelope (Column 4, Lines 58-62), and a mercury barrier (Figure 1, Element 16) being effective to inhibit mercury atoms from absorbing into the glass envelope and amalgamating with sodium atoms therein, wherein the mercury barrier is substantially non-mercury absorptive (Column 4, Lines 47-51). The mercury barrier is located on the inside of the glass envelope on the inner surface and extends into a radial depth within the envelope (Figure 1). The mercury barrier is made from an oxide consisting of magnesium, aluminum, titanium, zirconium, and the rare earths (Column 4, Lines 48-55).

3. Claims 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Bardos et al. (USPN 5,170,095).

Regarding claims 24 and 25, Bardos discloses a mercury vapor discharge fluorescent lamp with a light-transmissive glass envelope (Figure 1, Element 1) with an inner surface, a phosphor layer (Figure 1, Element 2) adjacent to the inner surface, a discharge-sustaining fill gas of mercury vapor and inert gas sealed inside the envelope (Column 3, Lines 44-46). The phosphor layer is made of a luminescent material and a small quantity of calcium (abstract). The phosphor layer deters the absorption of mercury ions (abstract).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2879

5. Claims 5, 6, 12, 13, 16, 17, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woodward et al. (USPN 5,898,265).

Regarding claims 5 and 6, Woodward discloses the mercury barrier layer, but not the thickness of the layer. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. The layer needs to be thick enough to perform effectively and reduce the rate of mercury depletion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a mercury barrier 25-100 microns thick, since optimization of workable ranges is considered within the skill of the art.

Regarding claims 12 and 13, Woodward discloses a TCLP compliant fluorescent lamp, but not the degree of coloration at specific hours of operation. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. The lower the discoloration at the more hours of operation, the more effective and efficient the lamp. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a lamp with fewer than 30 degrees of discoloration at 2000 and 3000 hours of cyclical operation, since optimization of workable ranges is considered within the skill of the art.

Regarding claims 16, 17, 27, and 28, Woodward discloses a TCLP compliant fluorescent lamp, but not the lumen maintenance at specific hours of operation. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. The better the lumen maintenance per more hours of operation, the more effective and efficient the lamp. It would have been obvious

Art Unit: 2879

to one having ordinary skill in the art at the time the invention was made to create a lamp with a lumen maintenance of at least .6 at 2000 and 3000 hours of cyclical operation, since optimization of workable ranges is considered within the skill of the art.

Allowable Subject Matter

6. Claims 22-23 are allowed.

Regarding claim 22, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 23, and specifically comprising the limitation of a mercury vapor discharge fluorescent lamp with a mercury barrier layer made of an electrically non-conductive tin oxide.

Regarding claim 23, claim 23 is allowable for the reasons given in claim 22 because of its dependency status from claim 22.

7. Claims 4, 9-11, 19-20, 26, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 4, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 4, and specifically comprising the limitation of a mercury vapor discharge fluorescent lamp with a mercury barrier layer made of potassium atoms, potassium ions, calcium atoms, or calcium ions.

Regarding claim 9, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 9, and specifically comprising the limitation

Art Unit: 2879

of a mercury vapor discharge fluorescent lamp with a mercury barrier layer made of potassium atoms or potassium ions

Regarding claim 10, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 10, and specifically comprising the limitation of a mercury vapor discharge fluorescent lamp with a mercury barrier layer made of calcium atoms or calcium ions.

Regarding claim 11, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 11, and specifically comprising the limitation of a mercury vapor discharge fluorescent lamp with a mercury barrier layer made of an electrically non-conductive material.

Regarding claim 19, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 19, and specifically comprising the limitation of a mercury vapor discharge fluorescent lamp with a mercury barrier layer made of at least .5 weight percent potassium.

Regarding claim 20, claim 20 is allowable for the reasons given in claim 19 because of its dependency status from claim 19.

Regarding claim 26, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 26, and specifically comprising the limitation of a mercury vapor discharge fluorescent lamp with a mercury barrier layer made of potassium chloride, potassium nitrate, potassium borate, and mixtures thereof.

Regarding claim 29, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 29, and specifically comprising the limitation

Art Unit: 2879

of a mercury vapor discharge fluorescent lamp with a mercury barrier layer made of a potassium salt.

Response to Arguments

8. Applicant's arguments filed 8/21/2003, regarding claim 1, have been fully considered but they are not persuasive.

Regarding applicants claim that Woodward does not disclose a glass layer made of a mercury barrier material, the examiner respectfully agrees. However, the claimed limitation only states that within the glass envelope there is a mercury barrier layer, which Woodward does disclose. When the term "glass envelope" is referred to, it is understood to mean anything enclosed by the glass envelope.

9. Applicant's arguments, filed 8/21/2003, with respect to claims 9, 10, 11, 19, 22, and 26 have been fully considered and are persuasive. The rejections of claims 9, 10, 11, 19, 22, and 26 have been withdrawn.

10. Applicant's arguments with respect to claims 24 and 25 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haitko et al. (USPN 5,574,002) discloses that calcium is a known antioxidant.

Jansma (USPN 5,045,752) discloses a phosphor that is also a mercury barrier.

Art Unit: 2879

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Harper whose telephone number is (571) 272-2453. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Holly Harper
Patent Examiner
Art Unit 2879

